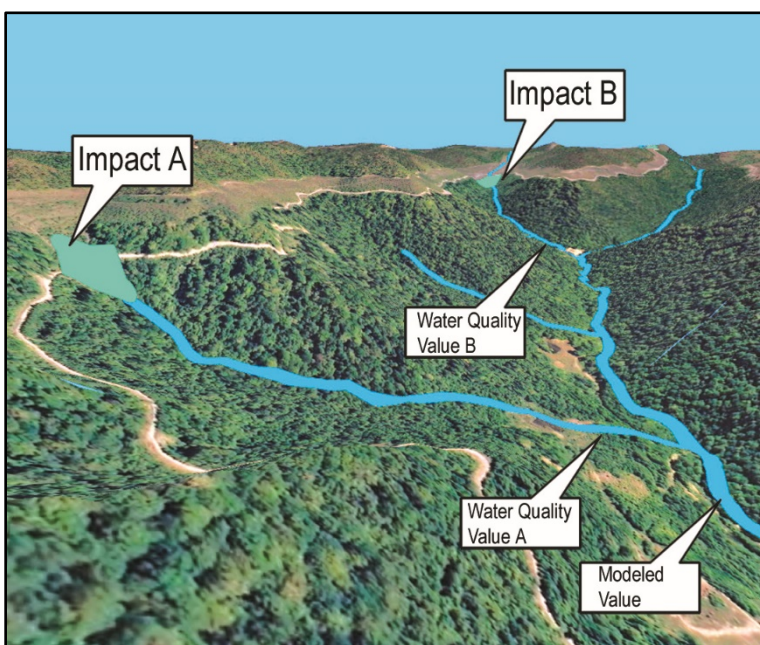




BIOLOGICAL SYSTEMS
CONSULTANTS, INC.



Mountainside Coal Company, Inc.
KDNR Application# 918-0450
KPDES# KY0111571
BSC# 213092
Protection and Enhancement Plan
For the Blackside dace (*Chrosomus cumberlandensis*)
Adaptive Management Plan (AMP)

Updated January 20, 2016

P.O. Box 54954
Lexington, KY 40555
(859) 263-4142

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Prepared For:

United States Fish and Wildlife Service
330 West Broadway, Suite 265
Frankfort, KY 40601

Kentucky Department for Natural Resources
Division of Mine Permits
2 Hudson Hollow Road
Frankfort, KY 40601

Prepared By:

Biological Systems Consultants, Inc.
P.O. Box 54954
Lexington, KY 40555-4954

Updated January 20, 2016

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Adaptive Management Plan Summary

The following Adaptive Management Plan (AMP) is being provided to the United States Fish and Wildlife Service (FWS) and the Kentucky Department for Natural Resources (KDNR), on behalf of Mountainside Coal Company, Inc., and pertains to Surface Mining Control Reclamation Act (SMCRA) permit application number 918-0450.

This report provides an Adaptive Management Plan (AMP) and includes (1) an adaptive management plan for conductivity triggers; (2) Johnson Model calculations (Appendix A, Figure A-1); and (3) an AMP monitoring map (Appendix A, Figure A-2). The AMP is summarized as follows:

Background Water Quality and Monitoring

The baseline monitoring data for this site provides the reference information for comparing the pre, during, and post-project monitoring. The monthly monitoring of the dace habitat will provide on-going water quality and habitat information to compare to the baseline information. Continuous in-stream conductivity value data loggers are proposed to be installed prior to the start of the operation at in-stream monitoring stations IMP2, B8 (KPDES-IO8), IMP3, and IMP4. The continuous monitors will provide on-going monitoring information for the watershed that can be compared to the baseline data. Water quality and in-stream habitat will also be assessed on an annual basis during collection of macroinvertebrates and during the annual fish census. Figure A-2 in Appendix A contains a location map depicting the in-stream monitoring points proposed to help protect the blackside dace and its habitat.

All in-stream points will be monitored for specific conductivity on a semi-monthly (twice per month) basis if no ponds are discharging. These stations will be monitored daily when ponds are discharging into their receiving waters.

As revealed by the background monitoring data, the maximum conductivity value in the right fork of Buffalo Creek at station B8 (KPDES - IO8) was 372 $\mu\text{S}/\text{cm}$. This is incorporated in the AMP as a cease discharge trigger for in-stream monitoring points B6 (IO6) and B8 (IO8).

Specific Conductivity Modeling and Monitoring

The KDOW comment letter requested limitations that would prevent harm or degradation to blackside dace or its habitat. This limitation is inferred, from the background literature and USFWS as maintaining a 240 $\mu\text{S}/\text{cm}$ specific conductivity limit and preventing physical habitat alteration. However, due to the background conductivity values already exceeding these limitations, the maximum recorded value (372 $\mu\text{S}/\text{cm}$) was used for cease discharge trigger at stations B8/IO8 and IMP3, as well as for the modeling scenarios. Using these calculations the Johnson et al (2010) model was used to determine the potential elevation in the specific conductivity values which could arise from the operation yet maintain the required level below the tributary confluence, and

also to determine a limit which would require additional examination or cease discharge measures which are provided in the adaptive management plan (AMP). The Johnson model is considered to be further supported and viable based on the EPA Spruce Mine case that was upheld in court on September 30, 2014. Based on the model, this should ensure that the in-stream monitoring points (B8/IO8 and IMP3) would remain below the conductivity values currently found within the watershed, thereby protecting the dace and its habitat. Habitat alteration is primarily considered as additional sediment contributions and flow. These are addressed through the proposed sediment control plan.

Environmental Auditing

To ensure compliance with the AMP and document conditions as mining progresses, Mountainside Coal Company will initiate an environmental auditing process. This system will use a combination of in-house and consultant personnel and be performed on a monthly basis with semi-annual reports provided to FWS or at other frequencies as deemed necessary by the permittee or regulating agencies. These reports will be compiled by company personnel and the third party consultant. Consultant audits will be random months and include a minimum of 3 monthly visits per calendar year. They will consist of documentation and photographs of disturbed areas, and include a review of the in-stream monitoring results and modeling of these results to further assess the validity and accuracy of the Johnson model, and also to provide additional model calibration data. Other items may also be reported, such as pond maintenance data, if deemed necessary by the consultant or regulating agencies.

Documentation of AMP training will also be provided. Quarterly reports will be provided on the same frequency as KPDES DMR submittals with a yearend report submitted no later than 45 days following the end of the calendar year.

Adaptive Management Plan

- A. All stations sampled during the background monitoring program, within the mainstem and tributaries of Buffalo Creek, will be measured for specific conductivity on a semi-monthly (twice per month) basis. If a discharge is occurring in the watershed each in-stream monitoring point downstream of the discharge will also be measured daily. Data from the continuous monitors will also be retrieved twice monthly. These sites will also be measured daily if pond discharge is occurring in the sub-basin of the in-stream monitoring point.
- B. Prior to the start of the operation, installation of four continuous conductivity monitors would be installed at stations IMP2, IMP3, and IMP4, as well station B8/IO8 in the right fork of Buffalo Creek as illustrated by Figure A-2 (Appendix A).
- C. Target conductivity values for in-stream monitoring points should not exceed those shown as the trigger values.
- D. If a conductivity trigger event occurs at in-stream monitoring point B8/IO8 or IMP3, discharge will immediately cease (within two hours) with water being pumped to upstream locations or trucks, and water sampling or soil and rock sampling performed to determine the cause of the exceedance. Pumps, water trucks and/or water cannons will be kept on-site to assure an immediate response. The cause of the exceedance will then be remedied through consultation with FWS before the discharge can recommence. The degree of impact to tributaries or Buffalo Creek, if any, will also be determined through a watershed assessment, which will be designed and implemented within 24 hours of exceedance, and FWS representatives will be notified and consulted with to determine any additional protection measures. Notification will be reported to Carrie Allison at FWS within a 24 hour period.
- E. If exceedance of specific conductance triggers occurs at in-stream monitoring points but no discharge is occurring, the watersheds will be examined to determine the cause.
- F. In case of a cease discharge determination, dewatering of ponds would begin within 2 hours.
- G. Any trigger situations described above will be reported to FWS within 24 hours and reports filed within 45 days. However, steps to investigate or correct these situations will be implemented immediately.
- H. Macroinvertebrate Bioassessment Index (MBI) scores will also be used to gauge impacts. Scores falling outside of the background MBI range will require additional investigations including a comparison of habitat scores, pebble counts or sieve analysis to determine if it was caused by the mining operation.
- I. A dace study in Rose Creek (TN) is proposed once a year for 3 years. This study would follow the quadrat method developed by Mike Compton (KSNPC) to improve working knowledge of the species in Rose Creek.

Should additional information such as modeling or testing or “new science” arise that is contrary to these implemented measures, Mountainside Coal Company, Inc. may request an “opening” of the permit for re-evaluation. This may include results from modeling,

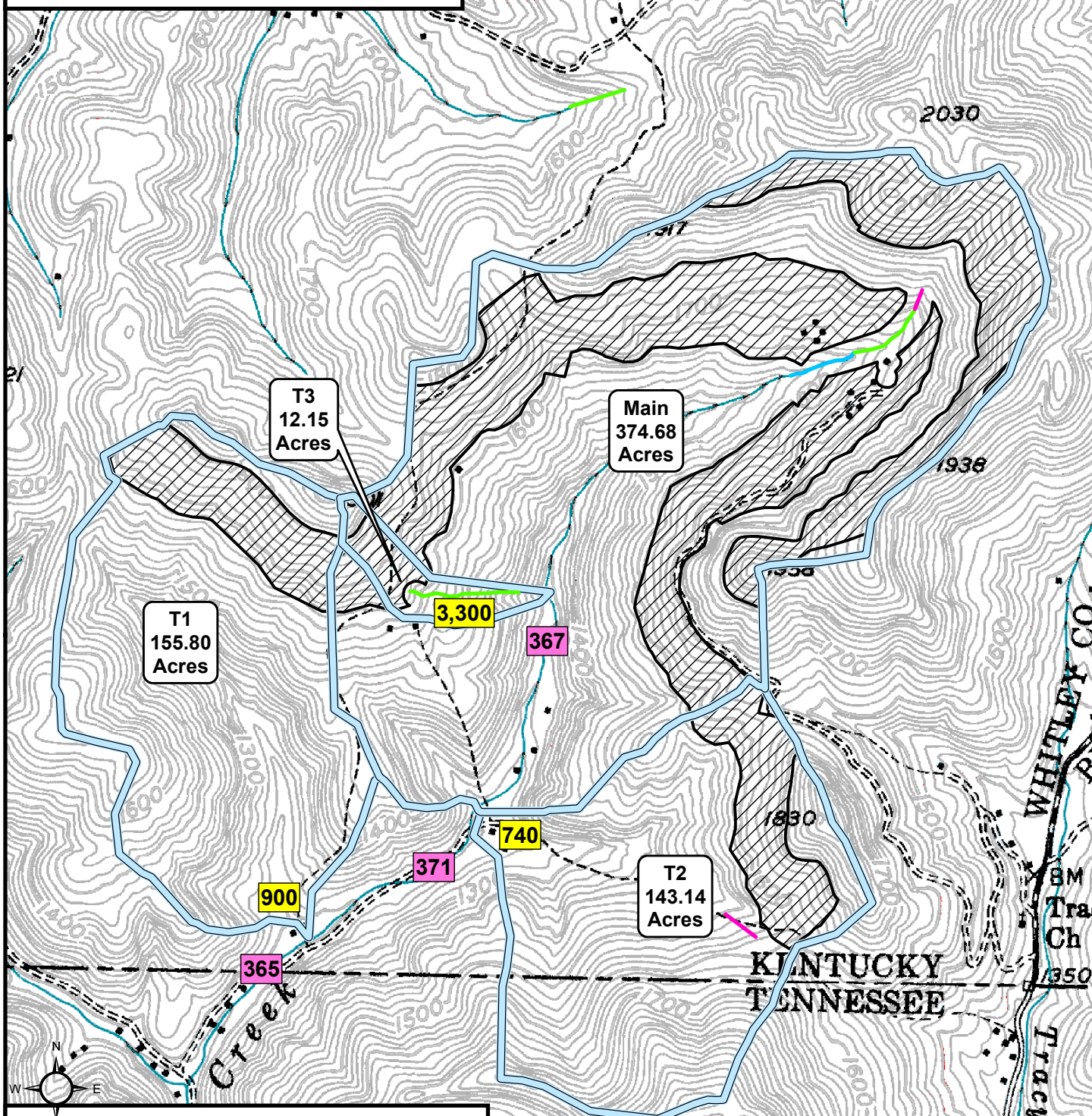
change in mining plan, reduction in disturbed areas or discovery of methods for reducing conductivity.

Appendix A
Adaptive Management Plan Maps



BIOLOGICAL SYSTEMS CONSULTANTS, INC.

Excerpt from the Eagan, KY
7.5' USGS Topographic Quadrangle
NAD 1983 StatePlane Kentucky FIPS 1600 (Feet)



Legend

Specific Conductivity Value

Predicted

Modeled

Watershed Boundary

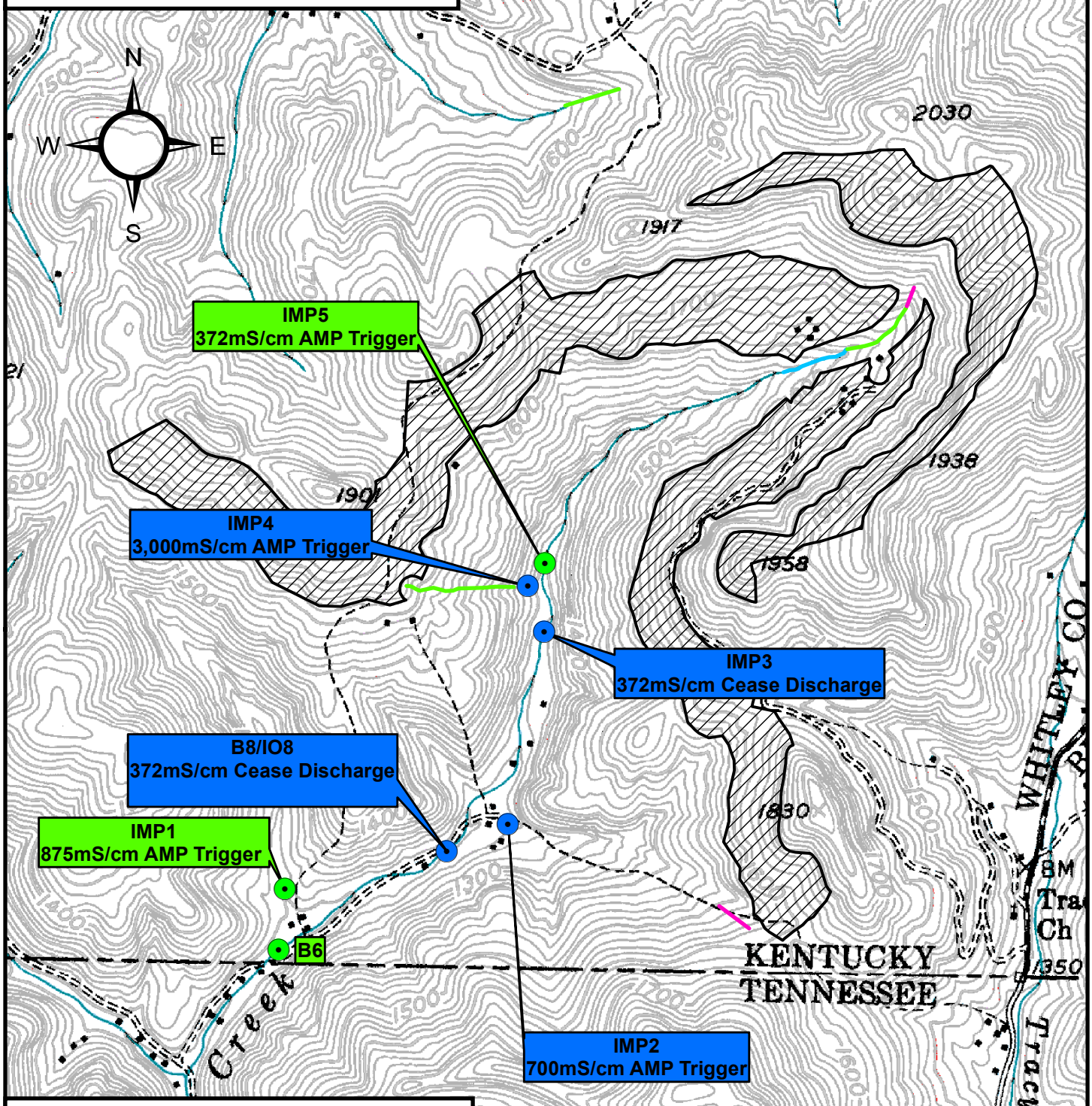
Permit Boundary Within OSRW Watershed

Drawing Name: Figure A-1
Post-Mining Conductivity Model
Project#: 213092
Drawn By: TBR Checked By: JRR
Client: Mountainside Coal Company, Inc.
KDNR#: 918-0450
Date: 02/2/16



BIOLOGICAL SYSTEMS CONSULTANTS, INC.

Excerpt from the Eagan, KY
7.5' USGS Topographic Quadrangle
NAD 1983 StatePlane Kentucky FIPS 1600 (Feet)



Legend

In-Stream Monitoring

- In-Stream Monitoring Point / Continuous Monitor / Checked 2x Month or Daily During Discharge
- In-Stream Monitoring Point / Checked 2x Month or Daily During Discharge

Permit Boundary Within OSRW Watershed

WOUS

"Waters of the U.S." *

- RPW (Perennial)
- RPW:S (Intermittent)
- NRPW (Ephemeral)

Drawing Name: Figure A-2
Monitoring Location Map
Project#: 213092
Drawn By: TBR Checked By: JRR
Client: Mountainside Coal Company, Inc.
KDNr#: 918-0450
Date: 01/25/16